Rate of Dissolution

**Purpose**

To determine how temperature affects the rate of dissolution  
To determine how surface area affects the rate of dissolution

**Hypothesis**

**Procedure**

#### **Part 1- Temperature**

1. Add 250mL of water to the 500mL beaker
2. Adjust water temperature according to your station (add ice to make it colder, put on hotplate to make it warmer)
3. Record the actual temperature of the water before you add the alka-seltzer ta. Leave the thermometer in for about a minute before you read the temperature.
4. Have someone ready with the stop watch in their hand
5. Add the alka-seltzer tab to the water and start the timer as soon as it enters the water
6. Stop the timer once the entire tablet has dissolved
7. Record your time on the board
8. Copy down all results in your table

#### **Part 2 - Surface Area**

1. Add 250mL of water to the 500mL beaker
2. Have someone ready with the stop watch in their hand
3. Add the alka-seltzer tab provided to you to the water and start the timer as soon as it enters the water
4. Stop the timer once the entire tablet has dissolved
5. Record your time on the board
6. Copy down all results in your table

**Results**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Temperature (oC) | Time (seconds) |  | Surface Area | Time (seconds) |
|  |  |  | Full |  |
|  |  |  | Broken |  |
|  |  |  | Crushed |  |
|  |  |  | Grinded |  |

**Questions**

1. What trend did you see for your temperature versus time graph?
2. Describe this trend using the particle theory.
3. What trend did you see for your surface area versus time graph?
4. Describe this trend using the particle theory.
5. How fast do you think it would take for an alka-seltzer tab to dissolve if the temperature were 150oC?

**Conclusions**